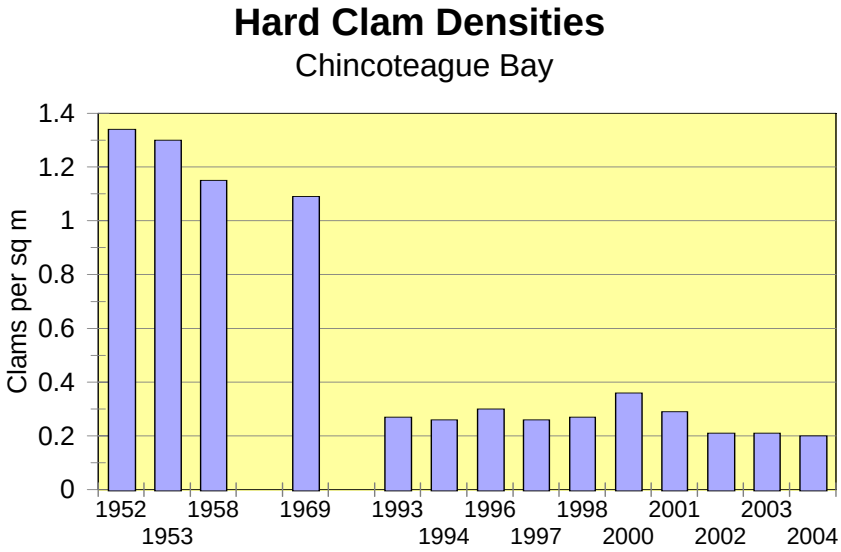
Section 22. Coastal Bays Hard Clam

Introduction

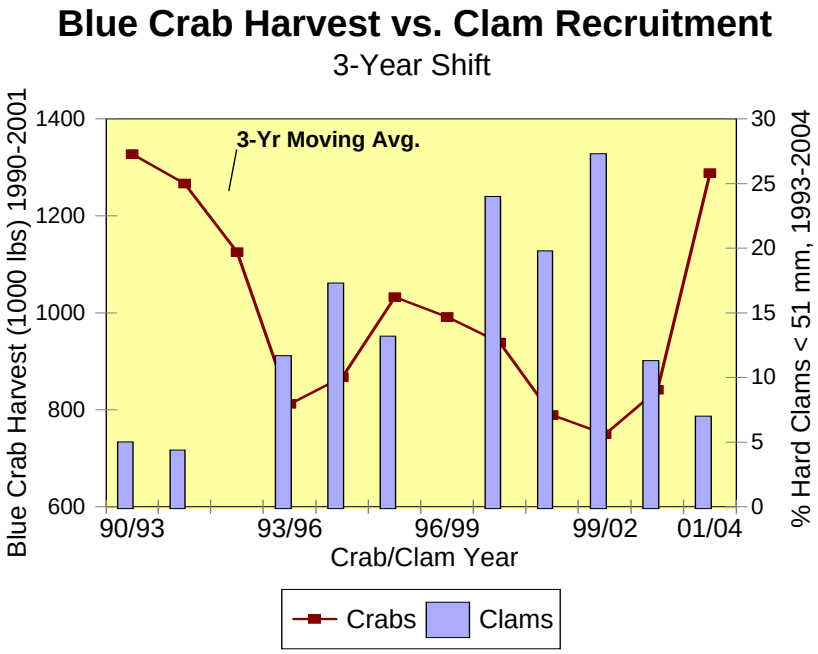
The hard clam, *Mercenaria mercenaria*, is a valuable resource to Maryland's coastal bays ecosystem and the commercial and recreational efforts it supports. In 1999, a Comprehensive and Conservation Management Plan was adopted for Maryland's coastal bays. This plan distinguished Maryland's coastal bays as a separate, unique ecosystem from the Chesapeake Bay and recommended that the Maryland Department of Natural Resources (MDNR) address fishery issues specific to Maryland's coastal bays. In accordance with this plan, a Coastal Bays Hard Clam Fishery Management Plan (FMP) was adopted in 2001 to conserve the coastal stock, protect its ecological and socio-economic values, and optimize the long-term utilization of the resource (Maryland Department of Natural Resources and Coastal Bays Fishery Advisory Committee 2002)

Stock Status

Over the past decade clam densities have remained in relative equilibrium at very low levels. The population remains just above the level of economic viability and the fishery appears to be self-regulating. As densities reach a threshold of about 0.2 clams /sq.m., boats start dropping out of the fishery. After five years, the *de facto* clam sanctuaries in the seagrass beds closed to harvesting have not shown any significant improvement in clam population levels.



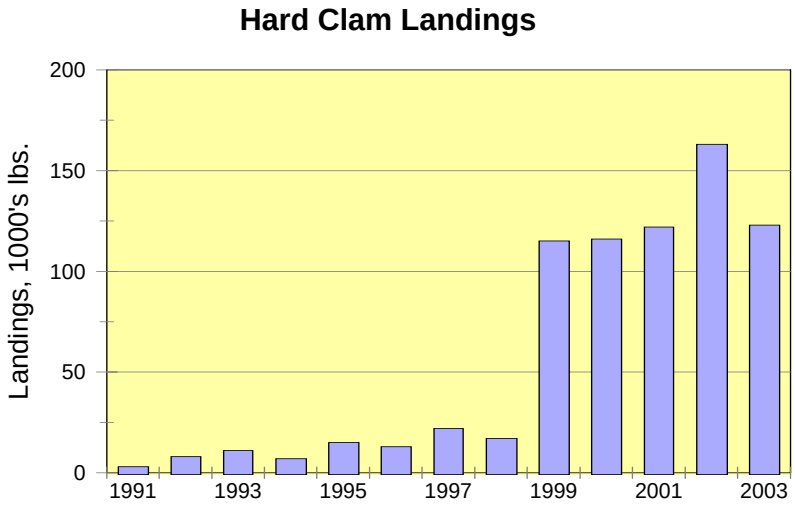
Generally speaking, the past three years have been marked by lower than the 12-year average for hard clam densities and recruitment. The generally poor hard clam recruitment can be attributable to predation, especially by blue crabs. This problem may have been amplified due to the sedimentation of the old oyster bars, resulting in the loss of protective shell cover for young clams. Good recruitment years appear to occur when blue crab populations are low, such as during *Hematodinium* outbreaks.



Fishery Statistics

Harvests in the mid-1990's were below 25,000 pounds per year. Successful recruitment during this period resulted in a sharp increase in landings, exceeding 100,000 pounds in 1999 and peaking at 163,000 pounds in 2002. The number of clam boats in the coastal bays increased from about 6 in 1993 to about 24 in 2001. Many boats came over from the Chesapeake where the soft clam fishery had collapsed. With the depletion of these year classes and more lucrative fishing opportunities such as sea scalloping, the hard clam fleet has dropped off in the past three years. At the start of the 2005-06 season only about three boats were working in the coastal bays.

The present recreational fishery is undocumented. Surveys in the mid-1950's and late 1960's estimated that recreational harvests were about equal to commercial harvests. However, with the increase in alternative recreational opportunities in the region over the years this ratio may no longer be valid.



Management Issues

The biggest issue involving hard clams concerns leasing bay bottom within 300 ft. of the shoreline for clam mariculture. This zone is preferred because water depths and bottom types are usually suitable for clam mariculture. Also, it avoids conflicts with commercial clammers who are prohibited from working within the 300 ft. setback. However, property owners adjacent to these lease areas object to the proximity of such activities, primarily for aesthetic reasons although water access is also an issue. Over the past two years two administrative law hearings have upheld the right of the state to lease these bottoms. In both cases the subsequent appeal hearings agreed with the findings of the administrative law judge, leaving these areas open for mariculture. This has also led to a flurry of "vanity" lease applications by property owners. MDNR held an information seminar on mariculture as a first step to address some of these issues and concerns. This will be followed up by further recommendations on such issues as best management practices for mariculture in the coastal bays by a newly formed aquaculture review board.

Conclusion

Over the past decade clam densities have remained in relative equilibrium at very low levels. Occasional recruitment bumps up the population, only to be cropped down by harvesting. The past three years have been marked by lower than the 12-year average for hard clam densities and recruitment. This can be attributed to predation, especially by blue crabs. As a result of poor recruitment and more lucrative fishing opportunities, such as sea scalloping, the hard clam fleet has dropped off in the past three years. At the start of the 2005-06 season, only about three boats were working in the coastal bays. The present recreational fishery is undocumented.

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address these issues and determine the best management practices for hard clam mariculture in Maryland's coastal bays.

Reference

Maryland Department of Natural Resources and Coastal Bays Fishery Advisory Committee. 2002. Coastal Bays Hard Clam Fishery Management Plan.

Maryland Department of Natural Resources. 2004. Maryland's Coastal Bays Ecosystem Health Assessment.

Table 22.1. 2001 Coastal Bays Hard Clam Fishery Management Plan (10/05)

	Action	Implementation
1.	**1.1.1** Investigate the importance of habitat closures (MDE restricted areas, SAV closures, and shoreline setback areas) to recognize their benefits as hard clam broodstock protection areas.	Ongoing.
2	**1.1.2** Develop an action plan for improving hard bottom habitat (i.e., shell or other suitable substrate) to reduce predation on small clams. The action plan will include the identification of: a) Planting materials and sources; b) Enhancement areas; and c) Funding sources (i.e. improved reporting of commercial hard clam harvest will increase funding generated through the shellfish tax which could be used towards bottom enhancement activities).	Not yet initiated
3	**2.1.1** DNR will limit the number of individuals into the commercial hard clam fishery by permit only based upon those individuals who have landed at least 100 bags of hard clams (as documented by DNR dealer reports) in Maryland's coastal bays in at least 2 years between the 1990/91 and 2000/01 seasons. Using these criteria, a total of 22 individuals would qualify for this permit. This permit should be transferable with a license, or to an individual who purchases a clam rig from an individual who meets the criteria stated above, and relinquishes their permit to the new clam rig owner. DNR will evaluate this action within 3 years to determine if the desired outcomes are being achieved. This action is consistent with actions 5.1.2 and 6.1.3.	Completed. However, lawyers determined that this was legally inadvisable.
4	**2.1.2** DNR will develop a plan (i.e. reporting requirement from commercial clammers) to improve the collection of catch, effort and economic data from the commercial hard clam fishery to assist managers in evaluating the impacts of future management decisions.	Not yet initiated. Although reporting appears to be better, perhaps due to threat of 2.1.1. .
5	**3.1.1** Evaluate the legal, institutional and economic incentives and barriers to private aquaculture at the local, state, and federal level in Maryland.	This was done as part of the recent Maryland Legislative Task Force on Seafood and Aquaculture. There is sufficient data on the barriers to aquaculture in Maryland to fill stacks.
6	**3.1.2** Identify problems with the permitting process, and make recommendations to specific agencies to solve those problems.	This was done through the above task force, reinforced with information from a range of states at the Maryland Aquaculture Development Conference held in Annapolis in August 2003.
7	**3.1.3** Simplify the application process, and designate a single point contact at DNR to assist potential applicants with aquaculture permits, questions related to the regulatory requirement, guidance through the permitting process and fulfilling of regulatory obligations, tracking permit	Ongoing.

	applications, and coordinating state agency permitting activities to aquaculture permits.	
8	**3.1.4** DNR will evaluate the feasibility of hard clam aquaculture in Maryland's coastal bays by: a) Identifying potential areas and size of area for hard clam aquaculture; b) Initiating and providing funding for pilot hard clam aquaculture studies; c) Investigating the economic impact of hard clam aquaculture; and d) Assessing the ecological impacts associated with hard clam aquaculture	a) This was not meant to designate where shellfish farmers would have to site their operations – that is already taken care of in Maryland law with regard to leasing. It should be used as a point of reference for the types of bottom most beneficial for the production of hard clams and oysters. We have learned a great deal to date about where these grow and thrive and these factors are necessary for an economically healthy industry. b) This has been done through the development of a shellfish nursery at Gordon's Shellfish that was supported by the MIPS program, as well as trials with several types of production methods. Information on what works best according to the bottom types and circulation patterns in the area, and the management objectives of the operator are considered. c) This is ongoing but it can be seen that hard clam aquaculture has revolutionized the Florida fishing industry and kept many former fishermen in business when they had few other options, as well as being a multi-million dollar industry in neighboring Virginia where the production of high quality shellfish runs ahead of MD. d) We concluded a study of the incidence of the clam disease QPX in cooperation with VIMS and continue to monitor mortality in farmed clams for disease (there has been none). We cooperated with MDNR on a study of hard clam growth in the presence of brown tide. A proposal was submitted to both Maryland Sea Grant and the Maryland Ag Experiment Station to fund a two-year study into commercial hard clam aquaculture and the relationship to SAV in the coastal bays. Because of budget problems,

		neither has been funded.
9	**4.1.1** DNR will develop and distribute a public outreach brochure illustrating recreational clamming areas, access points, methods and harvest restrictions.	Not yet initiated. Low priority.
10	**4.1.2** DNR will work with the Town of Ocean City and Worcester County to improve access to recreational clamming areas	Not yet initiated.
11	**4.1.3** DNR will investigate the feasibility of planting seed to establish and/or enhance areas for recreational clamming, and if feasible, develop a seeding strategy.	Not yet initiated. Low priority.
12	**4.2.1** DNR will reduce the recreational catch limit for hard clams from 1 bushel to 250 hard clams per person per day.	Effected in 2002.
13	**5.1.1** DNR will prohibit commercial clamming in the area between the Ocean City Airport at Marker 13 northward to the Rt. 90 Bridge on Saturdays (Sundays currently closed) between September 15 through October 15, and April 15 through May 31.	Effected in 2002.
14	**5.1.2** DNR will limit the number of individuals into the commercial hard clam fishery by permit only based upon those individuals who have landed at least 100 bags of hard clams (as documented by DNR dealer reports) in Maryland's coastal bays in at least 2 years between the 1990/91 and 2000/01 seasons. Using this criteria, a total of 22 individuals would qualify for this permit. This permit should be transferable with a license, or to an individual who purchases a clam rig from an individual who meets the criteria stated above, and relinquishes their permit to the new clam rig owner. DNR will evaluate this action within 3 years to determine if the desired outcomes are being achieved. This action is consistent with actions 2.1.2 and 6.1.3	Legally inadvisable (see Sec. 2.1.1).
15	**5.1.3** DNR will reduce the bycatch allowance of hard clams for recreational purposes in the hydraulic dredge fishery from 1 bushel to 250 hard clams per person per day.	Effected in 2002.
16	**5.2.1** DNR will establish a maximum noise level limit for commercial vessels consistent with the recreational limit	No action to date.
17	**5.2.2** DNR will increase the shoreline setback distance for which a person may not catch hard clams with a hydraulic dredge in front of federal or state-owned property from 150 to 300 feet	Effected in 2002.
18	**5.2.3** DNR's Natural Resource Police will monitor the causes of reported noise complaints to facilitate future management decisions related to this issue.	Not yet initiated
19	**5.2.4** DNR will investigate the impacts of prohibiting or restricting the written permission provision that allows an individual to catch hard shell clams with an hydraulic dredge within the shoreline setback of 300 feet.	Not yet initiated
19	**6.1.1** DNR and Maryland's Coastal Bays Program will educate the public on the ecological effects of hydraulic clam dredging and the importance of the commercial hard clam fishery to the coastal bays community.	No action to date.

20	**6.1.2** DNR will encourage studies to evaluate the ecological impacts of hydraulic clam dredging in Maryland coastal bays.	Ongoing
21	**6.1.3** DNR will limit the number of individuals into the commercial hard clam fishery by permit only based upon those individuals who have landed at least 100 bags of hard clams (as documented by DNR dealer reports) in Maryland's coastal bays in at least 2 years between the 1990/91 and 2000/01 seasons. Using this criteria, a total of 22 individuals would qualify for this permit. This permit should be transferable with a license, or to an individual who purchases a clam rig from an individual who meets the criteria stated above, and relinquishes their permit to the new clam rig owner. DNR will evaluate this action within 3 years to determine if the desired outcomes are being achieved. This action is consistent with actions 2.1.2 and 5.1.2.	Legally inadvisable (see Sec. 2.1.1).
22	**6.2.1** DNR will continue to prohibit the use of hydraulic clam dredges in SAV beds, and delineate existing SAV beds as necessary to maintain this protection over time.	Ongoing.
22a	**6.2.1a** The Maryland Coastal Bays Fishery Advisory Committee shall become the local group to develop and provide recommendations to DNR regarding the delineation of SAV closure areas to harvest from hydraulic clam dredging.	Ongoing.
22b	**6.2.1b** DNR will continue to foster the support among legislators to make recommended changes in the SAV law which would benefit all stakeholder groups by making the delineation and enforcement process more manageable, and the closure areas consistent over a longer period of time	Ongoing.
25	**6.2.1** DNR and the National Park Service will investigate the feasibility and funding options for using Global Positioning System (GPS) units to improve the ability for clammers to comply with SAV closure areas and offset the maintenance cost associated with using buoys to identify SAV closure areas.	No action to date.
26	**6.2.1** DNR will evaluate the need to restrict hydraulic dredging in important female blue crab overwintering areas by: a) Delineating female blue crab overwintering areas; b) Determining the significance or contribution of these overwintering crabs to the coastal bays blue crab population; c) Determining the magnitude of overwintering blue crab bycatch in the hydraulic clam dredge fishery; and d) Assessing the impact of dredging activity on overwintering female blue crabs.	Not yet initiated
27	**7.1.1** Develop strategies to restore water quality in areas closed to harvesting hard clams because of pollution	Not yet initiated
28	**7.2.1** Develop an action plan for improving hard bottom habitat (i.e shell or other suitable substrate) to reduce predation on small clams. The action plan will include the identification of: a) Planting materials and sources;	Not yet initiated

	b) Enhancement areas; and c) Funding sources.	
	7.3.1 The MD Coastal Bays Navigation and Dredging Advisory Group (NADAG) will seek comments from DNR's Shellfish Program on the potential impacts of proposed dredging activities on hard clams.	Not yet initiated
30	**7.4.1** DNR and MCBP will identify potential funding sources to support the following research and monitoring activities: 1) Assess the potential impact that noxious algal blooms have on hard clam populations; and 2) Identify factors which might contribute to noxious algal blooms.	Ongoing
31	**8.1.1** DNR with the advice of Maryland's Coastal Bays Fishery Advisory Committee will implement measures to minimize the impact of green crabs and Japanese shore crab on the hard clam population in Maryland's coastal bays, and coordinate this effort with Delaware and Virginia.	Not yet initiated
32	**8.1.2** DNR will continue to work with Maryland's Non-indigenous Species Task Force to examine invasive species issues, and develop an Aquatic Nuisance Species plan to become eligible for Federal funding	Ongoing.
33	**9.1.1** DNR will continue to survey the hard clam resource on annual basis in Maryland's coastal bays to facilitate management decisions.	Ongoing.
34	**9.2.1** Design and implement a program to monitor the efficacy of bottom enhancement activities.	Ongoing.
35	**9.3.1** DNR will establish, implement and evaluate a commercial reporting program to obtain accurate catch, effort and economic data from anyone harvesting hard clams in Maryland's coastal bays. This action is consistent with action 2.1.2.	Not yet initiated
36	**9.4.1** DNR will facilitate the design and implementation of a recreational clamming survey in Maryland's coastal bays.	Not yet initiated